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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/676,449 | 09/30/2003 | Ivan Krivokapic | 30287-109 | 7566 |
| 44279 | 7590 | 03/07/2005 | EXAMINER | |
| PULSE-LINK, INC. 1969 KELLOGG AVENUE CARLSBAD, CA 92008 | | | LU, JIA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2634 | |

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/676,449 | Applicant(s) KRIVOKAPIC, IVAN | |
| | Examiner Jia W. Lu | Art Unit 2634 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/30/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 4, 6, 7, 9, 16-18 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Young Yoon in US patent 6,822,508.
 - a. Regarding claims 1 and 28, patent '508 discloses a communication devise for use in ultra-wideband communications including a template generator (figure 7, element 52) which generates a local signal similar to incoming signal, a single correlator (figure 13, element 21), a filter in communication with the correlator (figure 3, element 23), an energy estimator (figure 9, element 72), and a pulse detector (figure 3, element 22).
 - b. Regarding claim 4, patent '508 generates a local signal (figure 7, element 52), and the use of electromagnetic energy in a local signal is inherent.
 - c. Regarding claims 6 and 7, patent '508 discloses a receiver for receiving ultra-wideband pulses, and it is inherent that electromagnetic pulse trains are used.
 - d. Regarding claim 9, patent '508 discloses a receiver as described above that can incorporate pulse position modulation (column 2, lines 3-15).

- e. Regarding claim 16, patent '508 discloses an energy estimator that joins a detector (column 13, lines 20-25) which includes absolute value calculations (column 13, line 31), and an integrator (figure 7, element 54).
 - f. Regarding claim 17, it is inherent and well known in the art that a square law detector as an absolute value detector can be used to estimate the energy of a signal. Patent application 2003/0093447, filed on November 5, 2002, explicitly addresses this in paragraph 7, lines 1-7.
 - g. Regarding claim 18, patent '508 shows the integration of a signal, and it is inherent that integration occurs over a predetermined time period.
2. Claims 24-27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by James L. Richards in US patent 6,529,568.
- a. Regarding claims 24 and 29, patent '568 discloses a receiver method comprising the steps of receiving an ultra-wideband signal (column 1, line 16), generating a template signal (figure 7, element 714), correlating the received signal with the generated signal (figure 7, element 710), estimating a timing reference and updating the template signal (figure 7, element 718), correlating the updated signal and detecting a pulse (figure 7, element 738).
 - b. Regarding claim 25, Patent '568 discloses an incoming signal to be electromagnetic pulses with duration of 0.5 nanoseconds (column 9, line 12).

- c. Regarding claim 26, patent '568 discloses many modulation techniques for incoming signals, including pulse position modulation (column 18, lines 30-31).
- d. Regarding claim 27, patent '568 discloses a correlation technique to include multiplying the UWB signal and template signal to produce a signal (figure 7, element 710), and attenuating a high frequency component of the product signal (figure 7, element 742).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claim 1 above, and further in view of US patent 3,906,453. Patent '508 discloses the use of a template generator in an ultra-wideband receiver. Patent '453 describes one embodiment of a template generator including a timing signal generator (figure 4, element 187), an AND gate (figure 4, element 218), and an amplifier (figure 4, element 181). It would be obvious to one ordinarily skilled in the art to incorporate this template generator into an UWB receiver to generate a gated, controlled periodic signal that is amplified to ensure adequate signal strength for processing.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claim 4 above, and further in view of US patent 6,378,080. Patent '080 shows the use of a local pulse with duration of 50 picoseconds (column 6, lines 31-32).
5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claims 6 and 7 above, and further in view of US patent 6,529,568. Patent '568 discloses an incoming signal to be electromagnetic pulses with duration of 0.5 nanoseconds (column 9, line 12).
6. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claim 1 above, and further in view of US patent 4,270,209.
 - a. Regarding claims 10, 12-14, patent '508 describes a receiver containing a correlator; patent '209 discloses a correlator within a receiver comprising a band pass filter (figure 1, element 31), a mixer (figure 1, element 12), a matched filter (figure 1, elements 13-20), and an amplifier contained within a filter (column 4, lines 35-36). It would be obvious to one ordinarily skilled in the art to use this form of correlation technique for a desirable signal.
 - b. Regarding claim 11, it is inherent that the transfer function of a matched filter is a version of the original transmitted signal.
 - c. Regarding claim 15, it is well known in the art that an AGC can be used to change the gain of the amplifier, as stated in US patent 5,212,827. It

would be obvious to one ordinarily skilled in the art to use an AGC in order to change the degree of amplification of the signal.

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claim 18 above, and further in view of US patent 4,846,920. Patent '508 describes a receiver comprising an energy estimator. Patent '920 describes means of obtaining signal energy value by integrating over the period of 1 microsecond. It would be obvious to one skilled in art to use this standard integration duration for a desirable speed in calculations.
8. Claims 21- 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,822,508 as applied to claim 1 above, and further in view of US patent 6,529,568.
 - a. Regarding claim 21, patent '508 discloses an ultra-wideband receiver including a pulse detector, and patent '568 discloses one embodiment of this pulse detector including a S/H function (figure 16, element 1628a) and an A/D converter (figure 16, element 1674a). It would be obvious to one ordinarily skilled in the art to use a S/H function and A/D converter in a pulse detector so that all subsequent signal processing can be implemented using digital techniques, which has any advantages over analog processing.
 - b. Regarding claims 22 and 23, it is inherent that an analog to digital converter can be performed on a multi-level with various number of signal levels (2, 4, 6, 8).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jia W. Lu whose telephone number is 571-272-6042.

The examiner can normally be reached on Mon- Fri, 9:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jia Lu
Examiner



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800